Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An apparatus for key management comprising:

(a) a multitude of key registers;

(b) a multitude of type fields, wherein each type field is associated with a key register[[s]];

(c) a key management controller;

(d) key management algorithms; and

(e) a plurality of key management functions, said plurality of key management functions including a plurality of unwrap operations;

wherein the type of an unwrapped key produced is determined by which one of said plurality of unwrap operations is used.

Claim 2 (original): The apparatus according to claim 1 wherein each type field contains at least one of the values including KK, DK, and null.

Claim 3 (original): The apparatus according to claim 2 wherein the contents of a key register with an associated type field whose value is KK is used to encrypt and decrypt the contents of other key registers.

Claim 4 (original): The apparatus according to claim 1 wherein said key management functions include an unwrap function, said unwrap function including:

(a) a wrapped key parameter for specifying an unwrapping key;

(b) a type parameter for specifying an unwrapping key type;

(c) an index parameter for specifying where to store the unwrapped key; and

(d) a wrapped key index parameter for specifying a wrapped key;

said unwrap function capable of unwrapping the wrapped key using the specified unwrapping key and an algorithm determined by the unwrapping key type.

Claim 5 (original): The apparatus according to claim 1 wherein said key management functions include a wrap function, wherein said wrap function includes:

(a) an index parameter for specifying a wrapping key; and

(b) a wrapping key index parameter for specifying a wrapping key key;

said wrap function capable of wrapping the wrapping key using the specified wrapping key key.

Claim 6 (original): The apparatus according to claim 1 wherein said key management functions include a data encryption function, said data encryption function includes:

(a) a data parameter for specifying encryption data; and

(b) a key index parameter for specifying an encryption key;

said encryption function capable of encrypting the specified encryption data using the specified encryption key.

Claim 7 (original): The apparatus according to claim 1 wherein said key management functions include a data decryption function, wherein said data decryption function includes:

(a) a cipher parameter for specifying a cipher for decryption; and

(b) a key index parameter for specifying a decryption key;

said decryption function capable of decrypting the specified cipher using the specified decryption key.

Claim 8 (original): The apparatus according to claim 1 wherein said key management functions include a data load function, wherein said data load function includes:

(a) a key parameter for specifying a plaintext key; and

(b) an index parameter for specifying a destination key register;

said data load function capable of loading the specified plaintext key into the destination key register.

Claim 9 (original): The apparatus according to claim 1 wherein said key management functions include a register clear function, wherein said register clear function includes an index parameter for specifying a key register, and is capable of clearing the specified key register and an associated type field.

Claim 10 (original): The apparatus according to claim 1 wherein said key management functions include an initialize function, wherein said initialize function is capable of:

(a) clearing said multitude of key registers;

(b) storing a specified plaintext key in an indexed register; and

(c) storing a KK value in the type field associated with the indexed register.

Claim 11 (original): The apparatus according to claim 1 wherein said multitude of key registers has a hierarchy.

Claim 12 (original): The apparatus according to claim 11 wherein said contents of a key register can only be used to wrap the contents of a lower hierarchical level key register.

Claim 13 (original): The apparatus according to claim 11_1 wherein said hierarchy has more than one root.

Claim 14 (original): The apparatus according to claim 1 wherein a key management function uses a key management algorithm determined by the value stored in the type field associated with the key register being operated on by said key management function.

Claim 15 (original): The apparatus according to claim 1 wherein said apparatus uses public key negotiation protocols to share new keys with other key management apparatuses.

Claim 16 (original): The apparatus according to claim 1 wherein said key management algorithms includes an encryption algorithm for wrapping a DK with a KK, wherein the wrapped data key = EKK(EKK(DK)).

Claim 17 (original): The apparatus according to claim 1 wherein said key management algorithms include a decryption algorithm for unwrapping a DK with a KK, wherein the wrapped data key = EKK(EKK(DK)).

Claim 18 (original): The apparatus according to claim 1 wherein said key management algorithms include encryption and decryption algorithms that use a bitwise exclusive-or operator.

Claim 19 (Currently Amended): A method for key management comprising the steps of:

(a) storing a data key in a key register;

(b) storing a[[n]] data type for said data key in an associated type field;

(c) storing a key key in a key register;

(d) storing a key type for said key key in an associated type field; and

(e) performing one of a plurality of key management functions ~~on at least one key register~~ using a key management algorithm, said plurality of key management functions including a plurality of unwrap operations;

wherein the type of an unwrapped key produced is determined by which one of said plurality of unwrap operations is used.

Claim 20 (original): The method according to claim 19 wherein said data type is at least one of the values including KK, DK, and null.

Claim 21 (original): The method according to claim 19, wherein said step of performing a key management function includes performing an unwrap function, said unwrap function includes the steps of:

(a) retrieving an unwrapping key from a key register;

(b) retrieving an unwrapping key type;

(c) determining where to store an unwrapped key;

(d) retrieving a wrapped key; and

(e) unwrapping the wrapped key using the unwrapping key and an algorithm determined by the unwrapping key type.

Claim 22 (original): The method according to claim 19, wherein said step of performing a key management function includes performing a wrap function, wherein said wrap function includes the steps of:

(a) retrieving a wrapping key;

(b) retrieving a wrapping key key; and

(c) wrapping the wrapping key using the wrapping key key.

Claim 23 (original): The method according to claim 19, wherein said step of performing a key management function includes performing a data encryption function, said data encryption function includes the steps of:

(a) retrieving data for encryption;

(b) retrieving an encryption key; and

(c) encrypting the data using the encryption key.

Claim 24 (original): The method according to claim 19, wherein said step of performing a key management function includes performing a data decryption function, wherein said data decryption function includes the steps of:

(a) retrieving a cipher;

(b) retrieving a decryption key; and

(c) decrypting the cipher using the decryption key.

Claim 25 (original): The method according to claim 19, wherein said step of performing a key management function includes performing a data load function, wherein said data load function includes the steps of:

(a) retrieving a plaintext key;

(b) determining a destination key register; and

(c) loading the specified plaintext key into the destination key register.

Claim 26 (original): The method according to claim 19, wherein said step of performing a key management function includes performing a register clear function, wherein said register clear function includes the steps of:

(a) clearing a specified key register; and

(b) clearing an associated type field.

Claim 27 (original): The method according to claim 19, wherein said step of performing a key management function includes performing an initialize function, wherein said initialize function includes the steps of:

(a) clearing a multitude of key registers;

(b) storing a specified plaintext key in an indexed key register; and

(c) storing a KK value in the type field associated with the indexed register.

Claim 28 (original): The method according to claim 19, wherein said key register is part of a hierarchy of key registers.

Claim 29 (original): The method according to claim 28, wherein said contents of the key register can only be used to wrap the contents of a lower hierarchical level key register.

Claim 30 (original): The method according to claim 28, wherein said hierarchy has more than one root.

Claim 31 (original): The method according to claim 19, wherein the step of performing a key management function further includes using a key management algorithm determined by the value stored in the type field associated with the key register being operated on by said key management function.

Claim 32 (original): The method according to claim 19, further including the step of sharing new keys with other key management apparatuses using public key negotiation protocols.